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10/783,864	02/23/2004	Manfred Ueberschar	VOI0211.US	7576
<div><div>7590</div><div>06/07/2007</div><div>Todd T. Taylor Taylor & Aust, P.C. 142 S Main St. P.O. Box 560 Avilla, IN 46710</div></div>				
<div>EXAMINER</div> <div>BAREFORD, KATHERINE A</div>				
<div>ART UNIT</div> <div>PAPER NUMBER</div> <div>1762</div>				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/783,864	Applicant(s) UEBERSCHAR ET AL.	
	Examiner Katherine A. Bareford	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Claims 1-23 are canceled

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 24, 2007 has been entered.

The amendment filed with the RCE submission of April 24, 2007 has been received and entered. With the entry of the amendment, claims 1-23 remain canceled, and claims 24-45 are pending for examination.

Claim Rejections - 35 USC § 112

2. The rejection of claim 44 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is withdrawn as discussed in the Advisory Action of April 3, 2007 based on applicant's showing as to the meaning of the term

“grammage” in the after final amendment of March 29, 2007 (the Examiner notes that the amendment of April 24, 2007 applicant repeats this showing).

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 24-45 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 24, last three lines, as amended April 24, 2007, requires that “said first curtain and said second curtain maintaining said pressure differential along said first curtain and said second curtain to said material web.” Applicant indicates at pages 9-10 of the Remarks of April 24, 2007 that the invention is enclosed by the medium curtains, as stated in lines 9-14 of the specification, and the positive or negative pressure in space 44 would extend throughout space 44 since there are no restrictions in the space to allow a difference of pressure within space 44, nor are there any leaks, gaps or spaces that exist along the medium curtains, and as such the pressure-differential is maintained along each of the medium curtains. The Examiner has reviewed these

arguments, and the disclosure as filed, however, this amendment contains new matter. The disclosure never uses language indicating the maintaining of the pressure differential as claimed, and therefore the Examiner has used the plain meaning of the term "maintaining", which the Examiner understands to require "to keep in an existing state." The Examiner finds no teaching or suggestion that the curtains themselves keep the pressure differential in an existing state. The specification discusses the pressure differential system at page 6, lines 4-15 and page 8, lines 9-19 and it is shown in figures 1-2. The specification indicates that suction/blower box 42 changes the pressure in space 44. As to the enclosure of the space, application units 16 and 22, medium curtains 28 and 30, paper web 14 and suction/blower box 42 (page 8, lines 10-12) are described as doing the enclosing. The Examiner notes that as described, this would enclose, as shown in figure 1, the front (unit 22 and curtain 30) and rear (unit 16 and curtain 28) sides of the system, the bottom (web 14) side of the system and the top (units 22 and 26 and suction/blower 42). First, therefore, it is possible that leaks or gaps could be provided by the application units, web and suction/blower 42. Furthermore, the left and right sides of the system (the sides in the direction across the web) are not described as enclosed or provided with information on how enclosed (these would be the sides described in Finnicum et al (US 5206057) as having side walls 19 and 20, see column 3, lines 40-50). If no walls are provided, the curtains of the system cannot possibly maintain (keep in an existing state) the pressure differential, because there will be constant leakage from the sides. If walls are provided (which actually not described

in the disclosure), there is no information provided as to how walls would be present that would not allow leakage. Given the lack of information in the disclosure of the present invention, it is new matter to claim how the curtains would act such that the pressure would be maintained as claimed.

The other dependent claims do not cure the defects of the claims from which they depend.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 24-34, 36-39 and 41-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al (US 4230743) in view of Finnicum et al (US 5206057).

Nakamura teaches a method of adding layers to a material web. Figure 4 and column 1, lines 10-15. At least one first layer of a first application medium is applied to the web. Figure 4 and column 7, lines 1-15. At least one second layer of a second application medium is applied to the material web. Figure 4 and column 7, lines 1-15. The application mediums are liquid or pasty. Column 7, lines 60-65, and column 10, lines 30-40. The first application medium (the microcapsule containing medium) can have a solids content of 10-60 wt%. Column 7, lines 60-68. The second application medium (the color developer) can have a solids content of 10-60 wt%. Column 12, lines 30-40. The viscosity of the first medium can be 20 to 200 centipoise (=mPas). Column 7, lines 60-68. The viscosity of the second medium can be 10.8 or 19.5 centipoise (=mPas). Column 15, lines 60-65 and column 16, lines 55-60. The first and second application mediums can be applied to the web in the form of curtains. Figure 4 and column 7, lines 1-15.

Claim 25: the water retention capability of the second application medium can be higher than that of the first application medium, as the amount applied of each material can be roughly the same and the second medium can contain an absorptive material, such as clay, not found in the first medium. Column 10, lines 25-40 and column 13, lines 30-40.

Claim 26: the density of the first application medium can be significantly greater than the density of the second application medium, given that in Example 2, for example, the first medium has a significantly higher solids content than the second medium, indicating its greater weight. Column 15, lines 35-65.

Claim 27: the viscosity of the first medium can be higher than that of the second medium, given that the viscosity of the first medium is taught to be 20 to 100 centipoise, while the viscosity of the second medium can be as low as 10.8 centipoise. Column 7, lines 60-68 and column 15, lines 55-65.

Claim 28: the first medium, for example, can be an aqueous solution or dispersion of solid particles. Column 7, lines 60-65 and column 10, lines 1-10 (the solid particles). The second medium can also contain solid particles, such as clay as an aqueous solution or dispersion. Column 12, lines 30-40 and column 10, lines 25-35.

Claim 29: the first medium can be a butadiene-styrene dispersion. Column 9, lines 50-55. The second medium can be a butadiene-styrene dispersion. Column 12, lines 40-45 and column 15, lines 55-65.

Claim 30: the solid particles can be mineral pigments or plastic particles. Column 10, lines 5-20.

Claim 31: the solid particles can be plastic, microcapsules or starch. Column 10, lines 5-20.

Claim 32: the first medium can have solids content of 10-60 wt%. The viscosity can be 20 to 100 mPas. The first medium can be a barrier layer, to the extent that the surface is covered and a protective material is also present. Column 10, lines 1-10.

Claim 33: the first application medium can be a starch solution. Column 10, lines 5-10 (note the presence of starch).

Claim 34: the first application medium can be applied with a curtain coater in an amount of 3.4 l/min (3400 ml/min) for a slit length of 800 mm (0.8 m) at a speed of 300 m/min. Column 17, lines 35-45 (sample 9). This provides an amount of $3400 / (.8 \times 300) = 14 \text{ ml/m}^2$.

Claim 36: the second application medium can be applied with a curtain coater in an amount of 4.7 l/min (4700 ml/min) for a slit length of 800 mm (0.8 m) at a speed of 300 m/min. Column 17, lines 35-45 (sample 9). This provides an amount of $4700 / (.8 \times 300) = 19.58 \text{ ml/m}^2$.

Claim 37: the apparatus can include a first curtain applicator unit with a first discharge nozzle, whereby the first medium is discharged as a first curtain onto a moving base. Figure 4 and column 7, lines 1-15. A second curtain applicator unit with a second discharge nozzle is provided for providing the second medium as a second curtain onto a moving base. Figure 4 and column 7, lines 1-15. The second applicator is positioned relative to the first applicator such that the first coating is still wet when the second coating is applied. Figure 4 and column 7, lines 1-15.

Claim 38: the curtain applicators apply the mediums, respectively, onto the moving base in a substantially finally metered manner. Figure 4 and column 7, lines 1-25.

Claim 41: the curtain heights of the first and second curtains can be about 10 to 20 cm (100 to 200 mm). Column 13, lines 40-45.

Claim 42: the first curtain applicator can discharge the first medium at 3.4 l/min for a width of 800 mm (0.8 m). Column 17, lines 35-45 (sample 9). This gives $3.4/0.8 = 4.25$ l/min per meter of width. The second curtain applicator can discharge the first medium at 4.7 l/min for a width of 800 mm (0.8 m). Column 17, lines 35-45 (sample 9). This gives $4.7/0.8 = 5.875$ l/min per meter of width.

Claim 43: the base speed can be 1000 m/min. Column 5, lines 35-40. For example, the speed can be 300 m/min. Column 17, lines 35-45. The base can be paper, such as art paper (which would be a "graphic paper" as things can be drawn on it). Column 13, lines 5-15.

Claim 44: the coating amount can be greater than 4 g/m² for each layer. Column 13, lines 30-40.

Claim 45: the web can be a paper or film web. Column 13, lines 5-15.

Nakamura teaches all the features of these claims except (1) that the viscosity is measured as a Brookfield viscosity determined at 100 rev/min (claim 24), (2) the density (claim 32), (3) the distance between the first and second applicators (claim 37), (4) the exact amount of material (claim 44), (5) the pressure differential in a space

partially bounded by the first and second curtains with the curtains maintaining pressure differential (claim 24) and (6) the vacuum/positive pressure device positioned between the two applicators (claim 39).

However, Finnicum teaches that when curtain coating, it is well known to position a pressure differential device that can provide a vacuum or positive pressure in a space partially bounded by the curtain. Figures 1, 3 and 7 and column 3, line 40 through column 4, line 40 and column 5, lines 1-40. The pressure differential space can be such that the space is provided before the curtain in the direction of movement of the web, with the front wall being the curtain. Figures 1 and 3 and column 3, line 40 through column 4, line 40. As well as the space can be provided behind the curtain in the direction of movement of the web, with the back wall of the space being the curtain. Figure 7 and column 5, lines 1-40. The system provides for moving the line of impingement on the curtain on the substrate without disturbing the uniform flow of the curtain. Column 2, lines 65-68. As a result of this system the optimal shape of the curtain can be provided. Column 4, lines 10-20.

It is the Examiner's position that it is well known to measure viscosity using a Brookfield system determined at 100 rev/min. As applicant has not traversed this position from the Oct. 3, 2005 Office Action, it is understood to be admitted prior art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nakamura to provide that the viscosity is within the claimed range when measured using the Brookfield system determined at 100 rev/min,

because Nakamura teaches a range of 20-100 centipoise viscosity without telling precisely how it is measured, and it is the Examiner's position that the use of a Brookfield system to measure the viscosity is a well known way of measuring viscosity, and its use would provide the desired viscosity of Nakamura when performing the process of Nakamura. It would further have been obvious to provide a density within the claimed range when performing the process of Nakamura, as Nakamura teaches to use an aqueous base and gives a range percentage of solids of defined additive materials, which would provide densities in the claimed range. It would further have been obvious to modify Nakamura to perform routine experimentation to optimize the distance between the first and second applicators, because Nakamura teaches to apply the second coating while the first coating is still wet, and therefore, the second applicator must be close enough to the first applicator for this to occur, based on the materials used and the speed of the coating. It would further have been obvious to modify Nakamura to perform routine experimentation to optimize the exact amount of material to be applied based on the materials to be used, because Nakamura teaches to apply more than 4 g/m² of material for each layer. It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Nakamura to provide a pressure differential device providing positive pressure or vacuum in a space partially bounded by the first and second curtains of the two applicators as suggested by Finnium with an expectation of desirable coating results by shielding the curtain and providing proper positioning of the curtain, because

Nakamura teaches curtain coating with two devices in series, and Finnium teaches the desirability of placing a pressure differential system providing positive pressure or vacuum directed before and after the curtain of a curtain coating device in the direction of movement of the web and partially bounded by the curtain. Because of the two curtains of the system of Nakamura, pressure differential systems as described by Finnium would be provided on both sides of the two curtains, which would suggest providing a single pressure differential system between the two curtains that is bounded by both of the curtains for efficient use of the space between the curtains. This pressure differential system would provide a pressure differential in a space between the first and second curtains relative to an ambient atmospheric pressure. The first and second curtains would act to maintain the pressure differential along the first and second curtain to the material web, because as shown by both Finnium and Nakamura the curtain extends to the web, and as shown by Finnium the curtain can act as a "wall" that helps encloses and seals the zone of pressure differential (see Figure 1, and column 3, lines 40-65, note that in the zone "a substantially static gas pressure, e.g., air pressure, can be maintained and controlled").

8. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Finnium as applied to claims 24-34, 36-39 and 41-45 above, and further in view of Shay (US 5192592).

Nakamura in view of Finnium teaches all the features of this claim except the ink filled microcapsules. Nakamura teaches that microcapsules can be provided in the first coating as part of the protective agent, where the microcapsules are filled with other than color developer. Column 10, lines 1-10. The microcapsules can be 3-50 microns in size. Column 10, lines 10-20. The solids content of the first coating can be 10-60 wt%. Column 7, lines 60-68. The viscosity of the first coating can be 10-200 centipoise (=mPas). Column 7, lines 60-68.

However, Shay teaches that it is known to provide aqueous coatings of styrene-butadiene latex, clay, starch, calcium carbonate and ink capsules. Column 6, lines 45-50. the solids content of this coating can be about 50 wt%. Column 6, lines 55-60. Shay teaches that the taught coatings can be commonly applied by blade, roll and curtain coating processes. Column 5, lines 50-60.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nakamura in view of Finnium to use ink filled microcapsules as suggested by Shay with an expectation of desirable coating results, because Nakamura in view of Finnium teaches that microcapsules filled with other than developer can also be used in the first coating and Shay teaches that it is well known that capsules of ink can be curtain coated.

9. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Finnium as applied to claims 24-34, 36-39 and 41-45 above, and further in view of Saito et al (US 5136970).

Nakamura in view of Finnium teaches all the features of this claim except the guide elements.

However, Saito teaches that when curtain coating, it is desirable to provide guide elements that guide curtain flow from the slot of the curtain coating nozzle. Figures 1-3 and column 3, lines 5-25.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nakamura in view of Finnium to a curtain guide member as suggested by Saito with an expectation of desirable coating results, because Nakamura in view of Finnium teaches a method of curtain coating in series and Saito teaches that it is desirable to use a guide member when curtain coating.

Response to Arguments

10. Applicant's arguments filed April 24, 2007 have been fully considered but they are not persuasive.

As to the 35 USC 103 rejection of claims 24-34, 36-39 and 41-45 using Nakamura in view of Finnium, the Examiner has reviewed applicant's arguments at pages 8-10 of the amendment, however, the rejection is maintained. Applicant has argued that the newly claimed "said first curtain and said second curtain maintaining said pressure

differential along said first curtain and said second curtain to said material web" is not taught or suggested by the cited references. The Examiner disagrees. The Examiner has taken the position, as discussed in the rejection above, that the combination of Nakamura and Finnium would suggest providing the first and second curtain in series (as shown by Nakamura) and forming a pressure differential in a space partially bounded by the first and second curtains, as Finnium teaches the desirability of placing a pressure differential system providing positive pressure or vacuum directed before and after the curtain of a curtain coating device in the direction of movement of the web and partially bounded by the curtain. Because of the two curtains of the system of Nakamura, pressure differential systems as described by Finnium would be provided on both sides of the two curtains, which would suggest providing a single pressure differential system between the two curtains that is bounded by both of the curtains for efficient use of the space between the curtains. This pressure differential system would provide a pressure differential in a space between the first and second curtains relative to an ambient atmospheric pressure. The Examiner also notes the discussion at paragraph 11 of the Feb. 12, 2007 Office Action as to the obviousness of the present invention using the combination of references. Furthermore, when using the suggested system of a first curtain followed by a second curtain with a pressure different area between the two curtains partially bounded by the two curtains, the first and second curtains would act to maintain the pressure differential along the first and second curtain to the material web, because as shown by both Finnium and Nakamura

the curtain extends to the web, and as shown by Finnium the curtain can act as a "wall" that helps encloses and seals the zone of pressure differential (see Figure 1, and column 3, lines 40-65, note that in the zone "a substantially static gas pressure, e.g., air pressure, can be maintained and controlled"). Applicant describes benefits that occur when having first and second curtains that extend all the way to the web, however, the combination of Nakamura and Finnium also provides the use of curtains that extend all the way to the web, as both references show curtains extending all the way to the web. If applicant means that benefits are accrued by making the pressure differential area partially bounded by the two curtains, the Examiner notes that the benefit of efficient use of the space is already provided, and the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

As to the rejection of dependent claims 35 and 40, the Examiner has reviewed applicant's arguments at pages 10-11 of the Remarks of April 24, 2007, however, the rejection is maintained for the same reasons as discussed in the paragraph above, as applicant only argues that these claims are allowable due to their dependency from parent claim 24.

As to applicant's argument at page 11 of the Remarks of April 24, 2007 as to the prematurity of the finality of the Final Office action, the Examiner notes that applicant has filed an RCE, so this argument is moot. Moreover, the properness of making the

Office Action of Feb. 12, 2007 Final was addressed in Box 11 of the Advisory Action of April 3, 2007.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Other inquiries can be directed to the Tech Center 1700 telephone number at (571) 272-1700.

Furthermore, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


KATHERINE BAREFORD
PRIMARY EXAMINER